

The impact of a minimum pension on old age poverty and its  
budgetary cost. Evidence from Latin America\*

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**Abstract**

This paper examines the impact on old age poverty and the fiscal cost of universal minimum old age pensions in Latin America using recent household survey data for 18 countries. Alleviating old age poverty requires different approach from other age groups and a minimum pension is likely to be the only alternative available. First we measure old age poverty rates for all countries. Second we discuss the design of minimum pensions schemes, means-tested or not, as well as the disincentive effects that they are expected to have on the economic and social behavior of households including labor supply, saving and family solidarity. Third we use the household surveys to simulate the fiscal cost and the impact on poverty rates of alternative minimum pension schemes in the 18 countries. We show that a universal minimum pension would substantially reduce poverty among the elderly except in Argentina, Brazil, Chile and Uruguay where minimum pension systems already exist and poverty rates are low. Such schemes have much to be commended in terms of incentives, spillover effects and administrative simplicity but have a high fiscal cost. The latter is a function of the age at which benefits are awarded, the prevailing longevity, the generosity of benefits, the efficacy of means testing, and naturally the fiscal capacity of the country.

*JEL Classification:* D190, D310, H300, I380, 0150

*Keywords:* Old age poverty, income transfer, pension systems, family income, fiscal policies, human development.

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34 Impacto de una pensión mínima en la población de tercera edad  
35 y sus costos presupuestales. Evidencia para Latinoamérica

36 **Resumen**

37 Este artículo examina el impacto sobre la pobreza y el costo fiscal de una pensión mínima uni-  
38 versal para la población anciana en Latinoamérica usando datos de encuesta de hogares en 18  
39 países. La asistencia a la pobreza de la población anciana necesita de una aproximación diferente  
40 a la de otros grupos de edad y la pensión mínima puede ser una opción alternativa viable. En  
41 primer lugar se mide la tasa de pobreza en la población de ancianos. En segundo lugar se discute  
42 el diseño de un esquema de pensión mínima, con y sin elegibilidad de la asistencia, así como el  
43 efecto desincentivo que se espera sobre el comportamiento social y económico de las familias,  
44 incluyendo la oferta laboral ahorros y solidaridad familiar. Tercero, se utilizan las encuestas de  
45 hogares para simular el costo fiscal y el impacto sobre las tasas de pobreza de un esquema de  
46 pensión mínima en los 18 países. El artículo muestra que una pensión mínima universal reduciría  
47 ampliamente la pobreza en la población anciana, excepto en Argentina, Brasil, Chile y Uruguay,  
48 en donde la pensión mínima ya existe y las tasas de pobreza son bajas. Este tipo de esquemas  
49 generan varios comentarios en relación con los incentivos, los efectos de dispersión y simplicidad  
50 administrativa, pero tienen altos costos fiscales. Los costos fiscales son función de la edad en la  
51 cual los beneficios son asignados, la alta longevidad, la generosidad de los beneficios, la eficacia  
52 del mecanismo de elegibilidad y la capacidad fiscal del país.

53  
54 *Clasificación JEL:* D190, D310, H300, I380, 0150.

55 *Palabras clave:* Pobreza en la vejez, transferencia de ingreso, sistema de pensiones, ingreso famil-  
56 iar, política fiscal, desarrollo humano.

57

## 58 1 Introduction

59 Alleviating old-age poverty requires different approach from other age groups.  
 60 Since policies that go through labor and output markets and educational and  
 61 training programs are ineffective, the only available instrument to alleviate  
 62 old age poverty is a transfer of real income (possibly through price subsidies).  
 63 In most developed countries, pension systems-which generally consist of a  
 64 balanced combination of pay-as-you-go and funded schemes-include mini-  
 65 mum pension schemes and are strongly redistributive, yielding a sizeable dif-  
 66 ference between poverty rates before and after transfer.<sup>1</sup> By contrast, in devel-  
 67 oping countries with pension systems, one observes that they have a limited  
 68 potential to solve old-age poverty because of the low coverage of those sys-  
 69 tems. Coverage rates are below 30% in half Latin American countries. They  
 70 range from around 10% of the labor force in Peru and Bolivia to about 60% in  
 71 Chile. These figures are for 2006 and are based on the number of contributors  
 72 (Mesa-Lago, 2004a; Rofman et al., 2008). As to the coverage of the elderly, the  
 73 rates are extremely low in most Latin American countries. They range from  
 74 5% in Honduras to 85% in Uruguay. They are about 60% higher than 60% in  
 75 the traditional four, Argentina, Brazil, Chile and Uruguay (ABCU, hereafter)  
 76 plus Costa Rica and Bolivia.

77 More efficient solution consists of lump-sum transfers financed by tax re-  
 78 cepts. These are pensions aimed at providing a replacement income to old  
 79 persons under the poverty line and are of two types (Willmore, 2001; Holz-  
 80 mann et al., 2009).<sup>2</sup> The first type of minimum pension covers unconditionally  
 81 all the elderly. Benefits are the same for everyone regardless of income, assets  
 82 or work history. This distinguishes it from means-tested pensions which do  
 83 not provide benefits (or provides reduced benefits) to those who have other  
 84 income or assets, and from the minimum pension guarantee for which bene-  
 85 ficiaries must have a history of contributions. In the OECD, only one country  
 86 (New Zealand) provides a universal pension to its aged population with the  
 87 objective to lift old persons above the poverty line. In low and middle in-  
 88 come countries, only four countries have such universal minimum pension

<sup>1</sup>Public old age pension systems are generally considered to have two objectives: income replacement and poverty prevention. Contributory schemes (also called earnings-related or insurance-based schemes) are used for the first objective. To fulfill the second objective, one relies on noncontributory schemes providing minimum rate benefits (also called social pension). Both separation and combination of these objectives have merits. By separating the two functions, one hopes that the only distortions will arise from the redistributive pillar and that the contributory pillar will carry no deadweight loss. By combining them, it is hoped that workers will perceive the contributions they have to pay as an insurance premium and not as a tax. How payroll taxes are perceived is an open and unresolved question (See on this point, Gill et al., 2005). Another advantage of merging the two functions is to make the whole system more politically sustainable. This view prevails in Continental European countries which follow the Bismarckian tradition (Casamatta et al., 2000). Empirically and theoretically, there appears to be a positive relationship between the generosity of a pension system and its contributory nature.

<sup>2</sup>It should be noted that reduced contributory pensions are also called "minimum pension schemes". These are aimed at workers who have had some work career but could not accumulate enough pension rights to reach a certain minimum level. These workers are entitled to a minimum pension that is not subject to any condition, except age condition and sometimes family structure.

arrangements: Mauritius, Namibia, Botswana and Bolivia (On Mauritius, see [Willmore, 2003](#)). They are easy to administer and do not require information on the income or assets of the beneficiaries. They offer a pension which is relatively low and, with the exception of Mauritius, not high enough to lift its beneficiaries above the poverty line.

The second type of minimum pension is also universal but subject to means-testing. This welfare pension can be completed by housing subsidy or the possibility of being admitted in a public nursing home.<sup>3</sup> A number of developing countries have universal means-tested schemes although the means test applies to the household and not to the individual. The most famous examples are rural Brazil and South Africa. The South African minimum pension is quite generous in terms of level (about one-third of per capita income) and the number of beneficiaries is high reaching 88% of the covered population. The pension is paid to men aged 65 and women aged 60 and over. It is funded through general taxation. The Brazilian minimum pension, for which the eligibility age is 60 for men and 55 for women, corresponds to the minimum wage ([Beltrão et al., 2004](#)). It is also worth mentioning Mexico City (Federal District) and its program of transfers for food expenses to the elderly living in poor areas. A few studies examine the incidence of minimum pension schemes. [Barrientos et al. \(2003\)](#) studies the effect of social pensions on the poverty rate of elderly people in rural Brazil and South Africa and computes poverty rates and poverty gaps with and without means-tested minimum pension. He shows that, in both countries, the non-contributory pension reduces both the rate of poverty and the poverty gap. [Rivera-Marques et al. \(2004\)](#) study the incidence of Mexico City's safety net for the elderly and show that the program reduces poverty and inequality but that its performance in terms of poverty reduction is weaker as soon as the eligibility rules are relaxed (no means test and extension to non-poor areas). Other recent analysis of universal means-tested pension schemes (which are discussed below) include [Carvalho and Evangelista \(2001\)](#), [Bertrand et al. \(2003\)](#) and [Duflo \(2003\)](#).

In Latin America, five countries—Argentina, Brazil, Chile, Costa Rica and Uruguay—have non-contributory pensions ([Bertranou et al., 2004](#)). These programs generally have a social assistance character. In that they are targeted at the poor and disabled who have no contributory capacity. In Brazil and Costa Rica, part of the social assistance pension benefits is financed by cross-subsidies from social insurance programs. In terms of coverage, Chile, Uruguay and Costa Rica offer the greatest coverage but, in absolute terms, Brazil has a social assistance program with more than 2 million beneficiaries and, if the rural pensions program is included, the number of beneficiaries exceeds 8 million. Table 1 gives the main features of Latin American pension policies. For more details, see, e.g., [Holzmann et al. \(2009\)](#) and [Mesa-Lago \(2004a\)](#). Even with high rate of coverage poverty will only be eradicated if benefits are high enough and the family structure is not too burdensome.

<sup>3</sup>There is also an age condition and, in some cases, conditions of citizenship or legal residency.

**Table 1.** Pension Policies in Latin American Countries

	Type of pension system	Coverage rate of the labor force	Year of pension reform	Coverage rate of the elderly
Argentina	mixed	24	1994	75
Bolivia	private	11	1997	90
Brazil	public	-	-	85
Chile	private	58	1981	80
Colombia	pub/priv	24	1994	25
Costa Rica	mixed	48	2001	60
Dominican Republic	private	-	2003	10
Ecuador	mixed	21	2004	31
Salvador	private	19	1998	15
Guatemala	public	-	-	15
Honduras	public	-	-	5
Mexico	private	30	1997	20
Nicaragua	private	16	2004	-
Panama	public	-	-	40
Paraguay	public	-	-	15
Peru	pub/priv	11	1993	25
Uruguay	mixed	60	1996	85
Venezuela	public	-	-	30

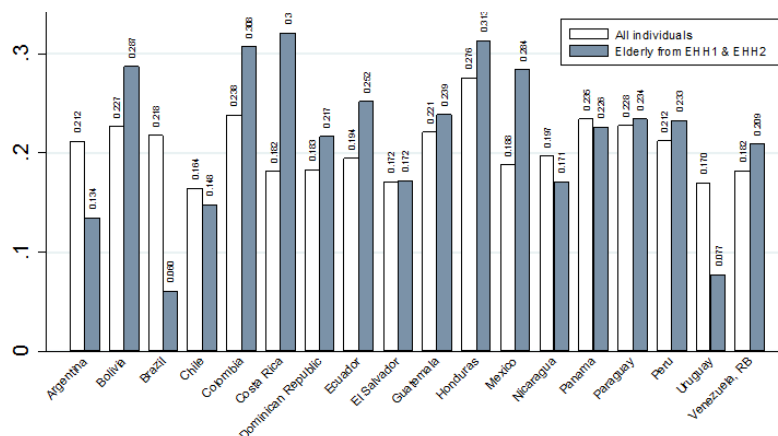
Source: Mesa-Lago (2004b) and Rofman et al. (2008) for last column.

## 133 2 Evidence on poverty in old age

134 At the international level, surprisingly little evidence is available on poverty  
 135 in old age. For example, in its statistical publications, the World Bank does  
 136 not report poverty rates for all age groups (World Bank, 2005). Data on child  
 137 poverty are published separately but not data on poverty in old age. Only  
 138 recently have there been efforts to publish internationally comparable indica-  
 139 tors of welfare from an age-specific perspective for rich and poor countries  
 140 (see for example HelpAge International (2004) and Kakwani et al. (2004)).

141 In developed countries, the old age poverty rates are generally not much  
 142 lower than those for the total population but this is a relatively recent trend.  
 143 A few decades ago, the average income of the elderly was substantially lower  
 144 than that of other age groups and their rate of poverty much higher (Förster  
 145 et al., 2003). In developing countries, patterns are different and there is no  
 146 obvious trend. As far as Latin America is concerned, the poverty headcount  
 147 for the elderly is clearly lower than for the population average in the cases of  
 148 ABCU and to a lesser extent in Nicaragua and Panama. It is higher in the other  
 149 countries as shown in figures 1 and 2 below.<sup>4</sup> These four countries, Argentina,

<sup>4</sup>In this and the following figures, households are defined as follows: NEHH is a household with no elderly members. EHH is a household with at least one elderly member. EHH house-



**Figure 1.** Poverty headcount ratio by country

*Note:* Poverty line = 50% of median per capita income. Household incomes were equivalized using the OECD equivalency scale adjusted household size  $[= 1 + (\# \text{ of adults} - 1) \times 0.5 + \# \text{ of children} \times 0.3]$ . An adult was a household member aged 18 years or more, a child was a household member aged less than 18 years at the time of the survey, elderly are households member aged 60 years or more.

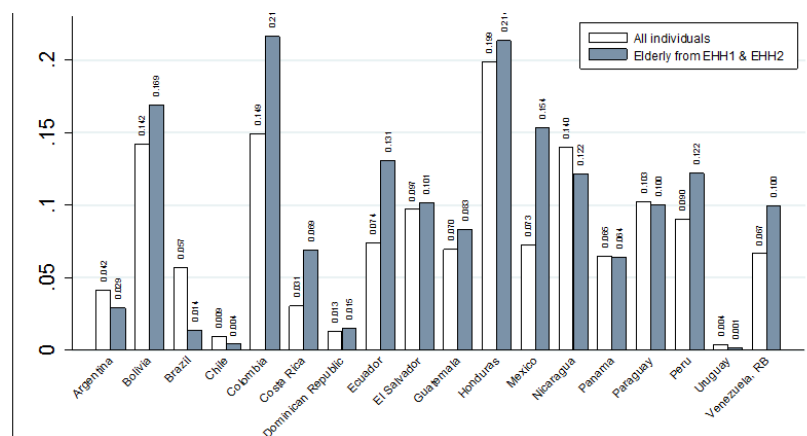
Brazil, Chile and Uruguay, which are among the richest in our sample, will often behave differently from the rest.

Poverty in old age can still be observed even in countries –for instance in the OECD– that have generous transfers for the elderly including targeted minimum pensions. This seems puzzling at first sight since the pension is universal and its level is above the poverty line (generally half the median income). There are at least three reasons for this apparent puzzle: family composition (if the other family members do not have any resource, the equivalent income of each member can be below the poverty line); take-up issue (when the pension is means-tested some individuals can be reluctant to claim it) and finally, given that it is subject to a means-test, some elderly people prefer to keep their assets even if these assets don't generate much income.

## 2.1 Old age poverty rates under current policies

Figure 1 presents the poverty ratio for the persons older than 60 and for the whole population in Latin America. The poverty ratio is based on a poverty

holds are divided into two subsets, namely EHH1 (elderly living alone by themselves) and EHH2 (consisting of both elderly and non-elderly members).



**Figure 2.** Poverty headcount ratio by country

*Note:* Poverty line = \$ 2 a day. Household incomes were equivalized using the OECD equivalency scale adjusted household size  $[= 1 + (\# \text{ of adults} - 1) \times 0.5 + \# \text{ of children} \times 0.3]$ . An adult was a household member aged 18 years or more, a child was a household member aged less than 18 years at the time of the survey, elderly are households member aged 60 years or more.

line equal to half the median income of the household. Figure 2 present the poverty ratio using a different definition of the poverty line, namely a poverty line equal to \$2 a day. The equivalence scale we use is the OECD scale that is equal to  $0.5 + 0.5 \times \text{number of adults} + 0.3 \times \text{number of children (up to age 16)}$ .<sup>5</sup>

With the poverty rate calculated with the OECD scale and a poverty line equal to half the median income, Brazil, Chile, Uruguay, Argentina (and to a lesser extent Nicaragua) have low poverty rates comparable to most OECD countries (below 11%).<sup>6</sup> These four countries are often associated as having the same “mature” treatment of old age. It is worth noting that they do not all belong to the richest Latin American countries as one can see on table 5 in the

<sup>5</sup>In the appendix we present poverty rates for the population aged 65+ instead of 60+ and for per capita income instead of equivalized income.

<sup>6</sup>These figures for Latin America can be compared with those for Africa where the percentage of households with elderly living alone is small. Elderly with children also represent a small percentage (about 1% in Uganda, Burundi, Ghana, Guinea, Kenya, Malawi). However, households headed by the elderly are more frequent, ranging between 12 to 27 percent. The incidence of poverty among elderly persons is generally higher than on average, and higher than among the non-elderly in 11 of the 15 countries for which data are available. The exceptions are Burundi, Madagascar, Mozambique and Uganda (Kakwani et al., 2004).

176 appendix. Mexico and Venezuela are richer than Brazil and Argentina. For the  
 177 other 14 countries the poverty rates are quite higher and in most cases higher  
 178 than for the rest of the population. With the US\$2 a day poverty threshold the  
 179 poverty rates in ABCU become negligible ( $< 3\%$ ), still lower in old age than  
 180 in the whole population. In Nicaragua as well the poverty rate of the elderly  
 181 is lower than that of the rest of the population, but both are high.

182 We draw three main conclusions from the comparison of old age poverty  
 183 in these Latin American countries. First, poverty rates are consistently lower  
 184 for the elderly than for the whole population in Argentina, Uruguay, Brazil  
 185 and Chile.<sup>7</sup> Second, in the other countries, the situation is heterogeneous and  
 186 depends on the poverty line chosen. Using half the median income, Bolivia,  
 187 Colombia, Costa Rica, Honduras and Mexico have comparable overall levels  
 188 of poverty in old age and the elderly are poorer than the rest of the population.  
 189 Finally, the difference between old age and overall poverty rates is not very  
 190 high for all countries with limited pension systems.

191 Old age poverty is computed here using household surveys. As pointed  
 192 out by Angus (1997), when household per capita income (or expenditure) is  
 193 used as the main welfare indicator, the assumption made about the way in  
 194 which resources are shared in the family to which an elderly belongs affects  
 195 the quality of the estimates. The assumptions made by statistical agencies can  
 196 by themselves bias estimates against old age poverty. As an example Deaton  
 197 and Paxson (1998, p. 243) mention that the "fact" that there is less poverty  
 198 among the elderly in the United States depends on the assumption in the official  
 199 counts that the elderly need less than adults younger than 60.

200 Two major issues complicate the problem of measuring poverty in old age.  
 201 First, the elderly may often be living in households that are not that poor even  
 202 though they themselves are not receiving any pension so that the often used  
 203 implicit assumption of fair sharing might be invalid.<sup>8</sup> Second, the measurement  
 204 of poverty in old age needs to be sensitive to the potential impact of  
 205 economies of scale in household consumption on the perceived well-being of  
 206 the aged. Typically households with many children are deemed to be among  
 207 the poorest if one does not adjust for economies of scale. Then pensioner  
 208 households or households headed by widows, etc are not very highly represented  
 209 among the poor.<sup>9</sup> To illustrate the importance of equivalence scales,

<sup>7</sup>Interestingly, this is not the case in Costa Rica which has a non-contributory pension scheme but with the least generous average benefit of the 5 Latin countries with social assistance pensions (Bertranou et al., 2004).

<sup>8</sup>Traditionally equal sharing is assumed, with possibly a downward adjustment for children. Yet there is ample evidence to suggest that this is not the case. In the real world, we observe a wide range of situations ranging from the idyllic image of a family all devoted to the care of its elderly members to the more depressing representation of elderly being kept in the closet. The later situation has recently received a lot of attention in India where widows who represent a large fraction of the elderly (55% of women aged 60 and above are widowed-see Jensen (2003)) and often do not receive an equal share within the household (Dreze and Srinivasan, 1997). There is also the case of the Tanzanian "witches" studied by Miguel (2005) who shows how harshly unproductive members of a family can be treated by the others.

<sup>9</sup>Economies of scale resulting from living together and sharing goods such as housing, means of transportation, etc vary across countries, years and income levels. The extent of scale economies depend on the allocation between private and public goods in the household's con-



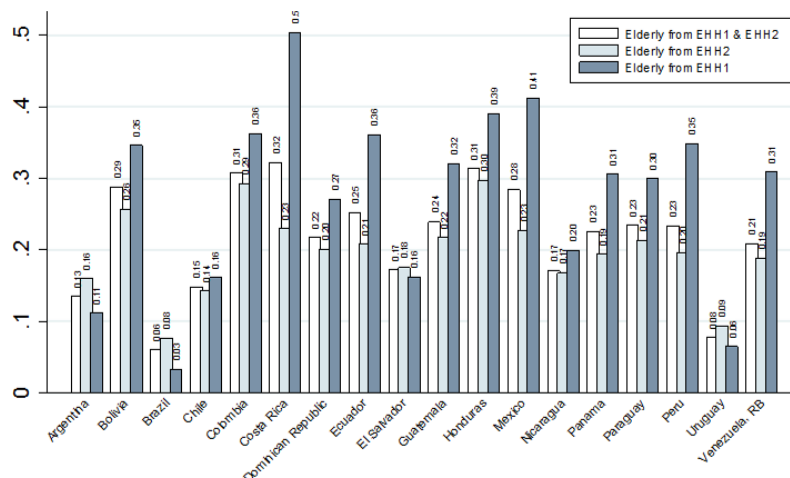
consider a society in which the elderly on average belong to family units of size 2 whereas the size of households without elderly is 5. Their aggregate income is respectively 5 and 10. Without scale economies, the elderly income is 2.5 and that of individuals living in households without elderly is 2. Using a standard equivalence scale (i.e., the square root of family size), these figures become 3.5 and 4.4. In other words, thanks to the economies of scale, the welfare of the non-elderly families can be higher than that of families with elderly.

In that respect it is interesting to analyze the structure of our elderly households. As it appears in table 6 in the appendix, Uruguay is the country where there are the largest fraction (0.54) of elderly households in which elderly individuals live on their own. In most OECD countries this fraction is even higher. At the other extreme we have Nicaragua with only 10% of elderly households consisting of only elderly individuals. In many countries children (16-) live in elderly households. In figure 3 we distinguish elderly households with and without non-elderly for poverty based on half the median income. These two subsets are denoted EHH2 and EHH1 respectively. It appears that poverty is relatively higher in the first group in Argentina, Brazil, Uruguay and in El Salvador. In all the other countries poverty is higher in households made of only elderly individuals.

In a number of cases the differences are huge showing the (assumed) role of family solidarity and the importance of the selected equivalence scale. To explore this point, as a thought experiment, we have posited that all the elderly individuals would live on their own. More precisely, we have assumed that the elderly living with younger family members would split and live separately on their own resources. The outcome of such a split is given in figures 4 and 5. Here again we see that Argentina, Brazil and Uruguay behave differently from the rest. In these countries poverty is lower for elderly living on their own than for younger individuals.

In this exercise we have used the pivotal age of 60 to define old age. The definition of what constitutes "old age" needs to be defined in relationship to longevity. Mortality has been rapidly declining over the last 50 years but there are great variations across countries and over time. All things being equal, average income and poverty levels for individuals above 60 are clearly

sumption basket, an allocation which is endogenous depending on prices and income. Household size, age and gender of household members may also influence the amount of resources needed to attain a certain level of well-being. The consumption needs of children are usually thought as being quite lower than that of adults. To go from household's resources to individual well-being, the concept of equivalent household scale is used. For example, the OECD currently uses an equivalence scale equal to  $0.5 + 0.5 \times (\text{number of adults}) + 0.3 \times (\text{number of children})$ . A household consisting of two adults and three children would need to spend 2.4 times as much as a single adult to be equally as well off as a single adult. By contrast, in the absence of economies of scale and with the same needs for both children and adults, this family would need 5 times as much as a single adult to reach the same welfare. An alternative equivalence scale formula is simply to take the square root of the family size (which, in our example, would give an equivalent size of 2.2, i.e., close to that of the OECD). Lanjouw et al. (2004) examine the incidence of scale economies on the poverty rate of the elderly in selected transition economies. They show that, without scale economies, poverty in old age is relatively low but that it increases with scale economies and rapidly become more important than in younger age groups.



**Figure 3.** Poverty headcount ratio by country

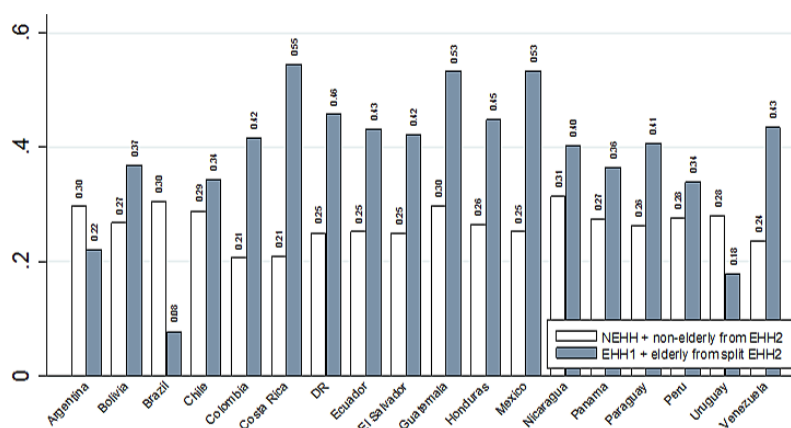
*Note:* Poverty line = 50% of median per capita income. OECD equivalency scale adjusted household size poverty headcount ratios for the population and its subgroups estimated using the same poverty line. Elderly are households members aged 60 years or more.

different if life expectancy is 78, as in developed countries, or 46 as in African countries. If the same cut-off age is chosen for all countries (say 60 or 65), there is a serious selection bias in the group of people above 60 for countries where longevity is 46. However the comparison between rich and poor countries may be seriously flawed because the main reason why life expectancy at birth is low in poor countries is child mortality.

Another difficulty comes from the relation between the pivotal age and the retirement age (i.e., the mandatory age at which workers have to stop working and/or the age at which retirees start benefiting from a pension). The rate of labor participation, formal or informal, above 60 varies significantly across countries and this depends in larger part on existing social security schemes. This is the reason why the appendix reports results for the alternative cut-off age of 65. Table 7 compares the poverty rates for elderly 60+ versus elderly 65+. In most countries poverty is slightly higher with 65+ except in ABCU, Bolivia, Ecuador and Panama.

## 2.2 Poverty Rates without Transfers

Table 2 compares poverty rates (headcount ratios based on a 0.5 median income poverty line) in those 18 Latin American countries for the elderly. The



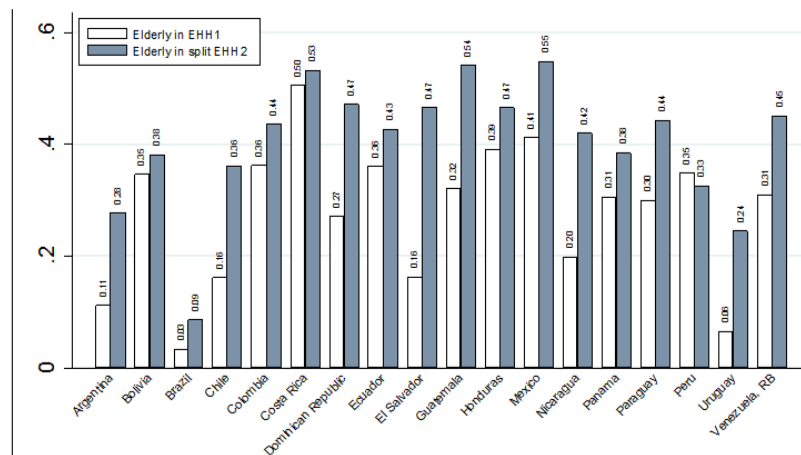
**Figure 4.** Poverty headcount ratio by country. Artificially split households  
*Note:* Poverty line = 50% of median per capita income. OECD equivalency scale adjusted household size. The poverty line is the same as that in the original population without the artificial splits.

first columns show the poverty rates under the actual situation and the second set of columns the poverty rates without transfers. Computations are shown for both the elderly and the whole population.

One observes that the incidence of social transfers is clear particularly when the post transfer poverty rate is low: Argentina's poverty rate falls from around 55 to 13 percent. Brazil's rate falls from 52 to 6% and Uruguay's rate from 51 to 8%. In general, however, the reduction in poverty rates is less important than in OECD countries for an obvious reason: with rare exceptions there are no pension systems in Latin American particularly aimed at reducing poverty among old people.

### 2.3 Simulating the impact of minimum pensions

This section presents the results of a micro-simulation exercise consisting in introducing a minimum pension in 18 Latin American countries, we follow Atkinson et al. (2002). We are concerned by two questions: how much minimum pension schemes would cost and how much poverty would they permit eradicating in Latin American countries. Answer to both questions clearly depends on the particular design of the minimum pension that is selected. We present here 2 possible schemes given a target minimum income of  $z$ . Let  $y$  denote the non public pension income of elderly and  $p$  their current public



**Figure 5.** Poverty headcount ratio by country. Elderly living alone vs. elderly in artificially split houses

*Note:* Poverty line = 50% of median per capita income. OECD equivalency scale adjusted household size. The poverty line is the same as that in the original population without the artificial splits.

281 pensions plus social transfers. In other words private pensions, if any, are part  
282 of  $y$ . Furthermore, we take  $z$  as equal to the poverty line.

- 1) Unconditional topping-up:** Elderly transfer guaranteeing poverty line income to all individuals aged  $x$  or more:

$$T = \text{Max}(0, z - p) \quad \text{if } \text{Age} > x$$

- 2) Conditional topping-up:** Elderly means-tested transfer guaranteeing poverty line income

$$T = \text{Max}(0, z - p - y) \quad \text{if } \text{Age} > x$$

283 The first scheme thus implies a uniform minimum pension and the second  
284 a variable one, which depends on households' resources. We briefly discuss  
285 the importance of the key parameters of these formulas.

286 *Age.* For contributory pensions, the eligibility age is part of the financial  
287 constraint conceived individually or collectively. But in the case of noncon-  
288 tributory pensions there is some arbitrariness to determine at what age a per-  
289 son without any resource and any employment history suddenly is entitled to

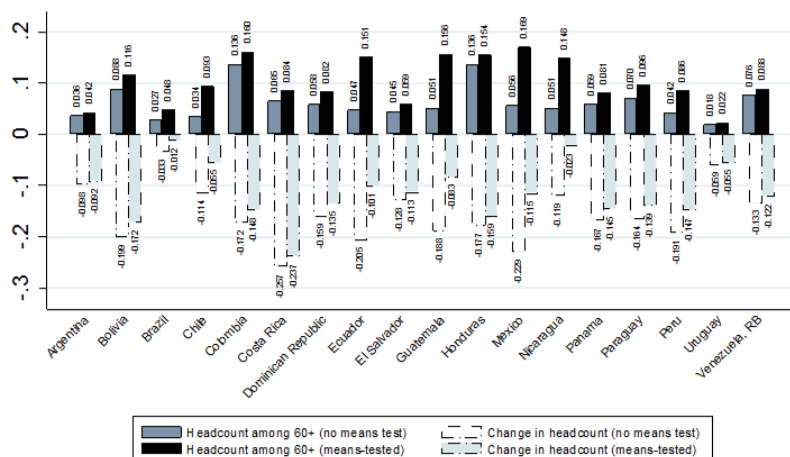
**Table 2.** Poverty headcount ratios in the absence of current pension transfers

Country	All HH's	All HH's, in absence of current transfers	Elderly individuals	Elderly individuals in absence of current transfers
Argentina	0.21	0.33	0.13	0.55
Bolivia	0.23	0.31	0.29	0.52
Brazil	0.22	0.33	0.06	0.52
Chile	0.16	0.23	0.15	0.39
Colombia	0.24	0.29	0.31	0.47
Costa Rica	0.18	0.22	0.32	0.48
DR	0.18	0.27	0.22	0.41
Ecuador	0.19	0.25	0.25	0.39
El Salvador	0.17	0.29	0.17	0.43
Guatemala	0.22	0.3	0.24	0.35
Honduras	0.28	0.39	0.31	0.52
Mexico	0.19	0.24	0.28	0.43
Nicaragua	0.2	0.25	0.17	0.29
Panama	0.23	0.34	0.23	0.51
Paraguay	0.23	0.3	0.23	0.41
Peru	0.21	0.24	0.23	0.3
Uruguay	0.17	0.33	0.08	0.51
Venezuela	0.18	0.24	0.21	0.38

*Note:* OECD adjusted HH sizes are used in calculating the poverty headcount ratios. The poverty line is half of the national median per capita income.

a transfer. The eligibility age should be determined by the capacity of the pensioner to work or not. It should thus be a function of health and of longevity. Given the level of benefits, the length of the entitlement-i.e., the difference between life expectancy and the age chosen-is what matters for the revenue constraint. Traditionally the retirement age tends to be lower for women than for men even though lately one witnesses harmonization (always towards the higher age) driven by gender equality and budget constraint considerations. We report simulation results for two definitions of "old age": 60 and older and 65 and older (in the appendix).

*Means Test.* Since the objective is to reduce poverty in old age, the only meaningful choice is between an unconditional minimum pension and a conditional (i.e., means-tested) pension. A minimum pension guarantee which covers only workers with some minimal career would exclude too many people. An unconditional pension has a number of advantages: it is administratively simpler; it implies less disincentives to work and save; and it carries less stigma. It is however costlier though there is the possibility of taxing those who do not really need it but this then creates some unwanted administrative costs: testing means or taxing those who don't need the pension are formally



**Figure 6.** Poverty headcount ratio by country. After top-up transfer (with change in poverty headcount ratio)

*Note:* Poverty line = 50% of median per capita income. OECD equivalency scale adjusted household size. The poverty line after top-up transfers were estimated using the pre-transfer poverty line.

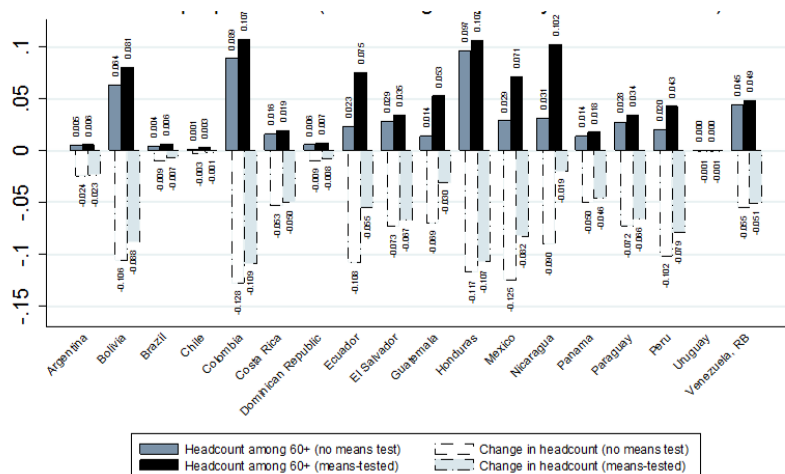
similar. Therefore, a priori, an unconditional pension would cost more than a conditional one but would be more attractive. The choice boils down to questions of financial feasibility and, above all, political support. If there are strong revenue constraints, it might be desirable to introduce other types of conditionality. For example, in Mexico, the uniform pension is offered in the Federal District to those known to be the poorest. In Brazil, the uniform pension (which is means tested) is restricted to rural areas.

*Level of Benefits.* It is reasonable to set the level of benefits as a function of an indicator of poverty such as the minimum wage or the poverty line. The benefit could be in cash or in nature. When there is a risk that the pension would not reach the elderly and when the pension is likely to be very small. it might be preferable to provide benefits such as food or health stamps than cash. Here we have decided to take the poverty threshold as a benefit target.

*Fiscal Cost.* To approximate the cost of providing a minimum pension, we use the revenue constraint

$$tEY = ET$$

where  $t$  is the contribution rate;  $Y$  the individual income; and  $T$  the level of minimum pension. We use the operator  $E$  as a short for the sum over all the individuals concerned. The feasibility of our minimum pension scheme will



**Figure 7.** Poverty headcount ratio. After top-up transfer (with change in poverty headcount ratio)

Note: Poverty line = \$2 a day. OECD equivalency scale adjusted household size.

clearly depend on the level of  $t$ , that is the fraction of mean income that is needed to finance it.

### 3 Incentive effects of minimum pensions

Minimum pensions are expected to have disincentive effects on individual decisions and on the economic and social behavior of households. These incentive effects will not be taken into account. To do so we would need behavioral microsimulations, which are out of the scope of this paper. Let us however mention the various behavioral reactions one can expect from minimum pensions schemes.

*Retirement Decision.* In developed countries low rates of activity among elderly workers and low effective age of retirement threaten the financial viability of social security systems by generating, in conjunction with increasing longevity, high dependency ratios (Gruber and Wise, 1999). The availability of a minimum pension at an early age is a factor explaining early retirement. For developing countries, a low rate of labor participation in old age is less of an issue. The problem can be avoided by choosing an entitlement age that is not too low. Comparing means-tested and unconditional minimum pension schemes. the former one will induce retirement earlier than the latter to the extent that it includes an earnings test.

343 *Prodigality Effect.* In the presence of a minimum pension, some individ-  
 344 uals who would otherwise have saved for retirement could be tempted to  
 345 reach retirement without any resources trusting that they are entitled to some  
 346 minimal protection. These individuals, labeled "rational prodigals" in the lit-  
 347 erature, have to be induced to save by making the minimum pension less  
 348 attractive. However by doing so in a world of asymmetric information, one  
 349 penalizes people who really depend on the minimum pension because they  
 350 are unable to accumulate enough resources for retirement. The prodigality  
 351 argument was introduced by Hayek (1960, p. 286) who advocated an old age  
 352 pension whose raison d'être "is not that people should be coerced to do what  
 353 is in their individual interest but that by neglecting to make provisions, they  
 354 would become a charge to the public. Up to this point the justification for  
 355 the whole apparatus of 'social security' can probably be accepted by the most  
 356 consistent defenders of liberty".<sup>10</sup>

357 *Mobility.* The incidence of a minimum rate pension when workers are mo-  
 358 bile is ambiguous. From the tax competition literature, we know that it will  
 359 attract low income retirees from less generous neighboring countries. This  
 360 will have the effect of pushing down these pensions and of resulting in what  
 361 is often called a race to the bottom. At the same time, the insurance of obtain-  
 362 ing a minimum pension regardless of one's career can induce mobility within  
 363 a country.

364 *Longevity.* As already mentioned, dependency ratios are lower in develop-  
 365 ing countries because longevity is lower, which limits the fiscal cost of a min-  
 366 imum pension, but the trend in developing countries is toward an increase  
 367 in dependency ratios as a result of increased longevity and declining fertility  
 368 (Wolfensohn and Bourguignon, 2004, p. 26). The cost of minimum pension  
 369 programs will thus increase. At the same time, minimum pensions would  
 370 induce by themselves an increase in longevity since they would provide the  
 371 elderly with better food and health care. Even in societies where transfers like  
 372 these minimum pensions are "confiscated" by other members of the extended  
 373 family, there are incentives to keep the beneficiaries alive and well as long as  
 374 possible.

375 *Weakening Family Ties.* In developing countries, elderly people often live  
 376 within a rather extended family and, in the absence of pensions, they rely  
 377 on younger generations to provide them food and care. These types of ar-  
 378 rangements have been studied by sociologists, anthropologists and more re-  
 379 cently by economists (Barrientos et al., 2003). The mechanisms underlying  
 380 these family arrangements range from pure altruism to cooperative or strate-  
 381 gic exchange, to social pressure. One hypothesis-known as the old age secu-  
 382 rity hypothesis-linking social security with fertility and family solidarity goes  
 383 as follows: in the absence of social security, parents depend on their children  
 384 to give them care and attention in their old age and, thus, tend to have many  
 385 children. As societies develop, social security institutions appear, and chil-

<sup>10</sup> Along the same lines, it is worth pointing out that a minimum pension can affect financial risk taking. In countries with individualized accounts and retirement money invested in the stock market, middle and low income workers may have a strong incentive to choose a portfolio with high risk and high return profiles as they can always be bailed out.



386 dren are much less needed as sources of support in old age: fertility falls and  
387 family links distend.

388 Since we are interested to find out what impact a minimum pension would  
389 have on poverty in old age, the relevant question is how the additional re-  
390 source represented by this transfer would be used by the elderly living in an  
391 extended household. The key issue is whether or not they will benefit, at least  
392 in part, from their pension. Some family structures in Africa and in Asia care  
393 for the elderly but restrict their needs to the minimum.<sup>11</sup> In such situations a  
394 minimum pension would, *de facto*, be confiscated away from the elderly and  
395 miss its intended objective.

396 *Spillover Effects.* In general one expects a more equitable allocation of re-  
397 sources within the extended family to result from transfers of this type with  
398 various consequences. The case of South Africa is interesting in this regard.  
399 Women turning 60 and men turning 65 become eligible for a pension roughly  
400 equal to twice the per capita income of black Africans in South Africa. This  
401 cash transfer had a double effect. First, it resulted in a drop in labor sup-  
402 ply of prime-age individuals living with these elderly, particularly when the  
403 pensioner is a woman (Bertrand, Mullainathan and Miller 2003). See also  
404 [Jakubowicz \(2004\)](#) for the case of rural Brazil. Second it resulted in improved  
405 health of the granddaughters when the grandmother is the beneficiary ([Du-](#)  
406 [flo, 2003](#)). These results show the type of 'arbitrage' that can be observed in an  
407 extended family. The role played by women is also striking. These minimum  
408 pensions have positive spillovers for other members of the extended family.  
409 [Carvalho and Evangelista \(2001\)](#) has studied the effect on labor outcomes and  
410 school enrollment of children residing with the beneficiaries of the pensions  
411 awarded to rural workers in Brazil. They show that these old age benefits fos-  
412 ter school enrollment and decrease child labor participation; they also show  
413 that the intensity of these effects depends on the gender of the beneficiaries  
414 and of the children concerned.

#### 415 4 Simulation results for 18 latin american countries

416 We now turn to the results of our "mechanical" (as opposed to behavioral)  
417 microsimulations using household survey data for 18 Latin America coun-  
418 tries for the latest available year. The surveys give us the disposable income  
419 (resources) and the family structure for aged people. We use two alternatives  
420 definitions of old age: 60 and 65 (the latter in the appendix). The disposable  
421 income is the sum of all the resources available in the family unit to which the  
422 elderly person(s) belong(s) divided by the equivalence scale. The simulation  
423 consists in introducing a minimum pension equal to the poverty rate. This  
424 pension is given to all elderly granted they do not receive any other transfers  
425 from the government. If they do, the new pension is adjusted accordingly. We  
426 consider two scheme depending on whether or not the minimum pension is  
427 means tested, the means being the resources of the elderly concerned.

<sup>11</sup>See footnote 9, [Dreze and Srinivasan \(1997\)](#) and [Miguel \(2005\)](#).

In the simulations, we use two specifications for the minimum pension US\$2 a day or 50% of median income. We are interested in measuring the impact on the poverty rate and the fiscal cost of this minimum pension. Clearly since the minimum pension is aimed at reaching the poverty line, if all elderly would live by themselves, poverty in old age would disappear. Poverty will only remain because a majority of elderly live with younger family members with whom they share all the available resources. Consequently results will depend on the equivalence scale and on the structure of the family where the elderly people live.

The results are presented in figures 8 and 9 for the two levels of poverty. These figures show the decrease in poverty rates due to the two types of schemes. Not surprisingly the decline in poverty is higher when there is no means test. In that case, some elderly end up with an income higher than the poverty line and this can be shared among all the members of the households. Let us repeat that if all elderly were living on their own, poverty would disappear under the two schemes.

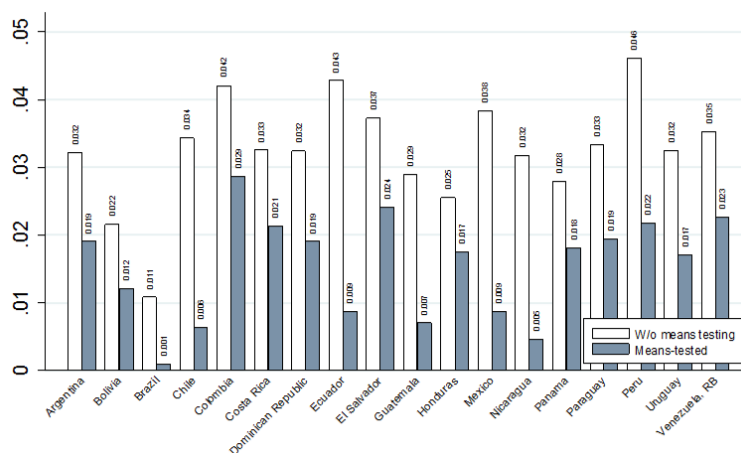
## 5 The cost of the two schemes

It might be useful to relate the cost of our minimum pension scheme to the concept of poverty gap, that is the amount relative to the poverty line that has to be transferred to the poor families to bring their incomes up to the poverty threshold. In other words the poverty gap give the relative amount of resources that one needs to eradicate poverty. If we measure the poverty gap for the population of elderly and if we assume that all the elderly live alone, the poverty gap and the cost of a minimum pension with means testing would coincide.<sup>12</sup>

Figures 8 and 9 give the cost of the minimum pension expressed here as a fraction of personal income.<sup>13</sup> The cost is high when the poverty line (and thus the minimum pension) is based on 50% of median income-which is also the minimum pension scheme that is the most efficient at lowering poverty. The highest cost is for Ecuador and Mexico. It is naturally higher when there is no means test. The cost depends on the share of old persons in the total population; on the average income of old households relative to the median; and on the presence or not of transfers (the minimum pension policy will be more expensive if there are no transfers to start with).

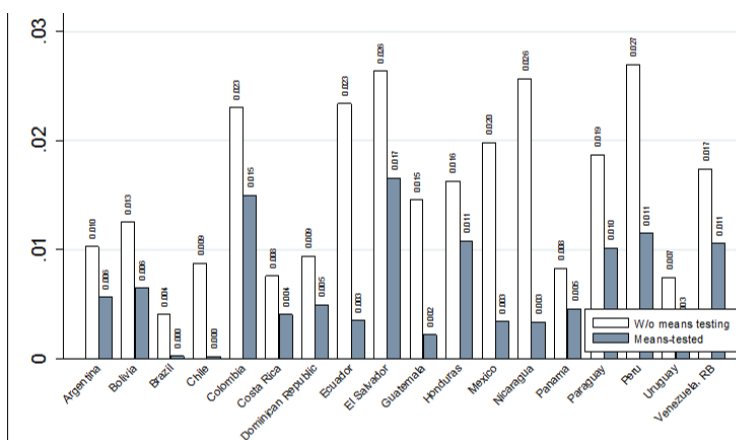
<sup>12</sup>Table 7 in the appendix, presents the poverty gap index for the whole population and for the population of elderly. The poverty gap index is the ratio of the difference between the poverty level and the actual non pension income of the poor over the poverty line. The relative cost of the means test scheme is the ratio of the difference between the poverty line and the actual non pension income over the average income.

<sup>13</sup>To express the fiscal cost as a share of GDP the figures would need to be multiplied by a factor of 0.5 to 0.7.



**Figure 8.** Cost of minimum pension program by country

*Note:* Poverty line = 50% of median per capita income. Cost is expressed as top-up pensions summed across HH's as a percentage of incomes summed across all HH's in the country.



**Figure 9.** Cost of minimum pension program by country

*Note:* Poverty line = \$2 a day. Cost is expressed as top-up pensions summed across HH's as a percentage of incomes summed across all HH's in the country.

462 **6 Conclusions**

463 The keystone idea of this paper is that societies are rightfully judged on the  
 464 way they treat their elderly and particularly their poor elderly and that the  
 465 best way to alleviate poverty in old age is through a scheme of basic pensions.  
 466 We applied this idea to a set of 18 Latin American countries. The main conclu-  
 467 sion we draw is that minimum pensions lead to a very substantial reduction in  
 468 poverty and that in general their cost is reasonable. Not surprisingly both the  
 469 effect and the cost of such a scheme drastically vary with the type of poverty  
 470 threshold chosen. Relative to half the median income a US\$2 a day pension  
 471 costs less. This is particularly true in richer countries where a \$2 a day pension  
 472 seems negligible.

473 Tables 3 and 4 summarize some of the key results. With half the median  
 474 income the relative reduction ranges from 17% in Colombia to 75% in Costa  
 475 Rica. The absolute reduction ranges from 2% in Brazil to 24% in Costa Rica.  
 476 As to the relative cost, it ranges from 0.1% in Brazil to 2.9% in Columbia.  
 477 Columbia is a particular case. The minimum pension there costs a lot and  
 478 yet it has a very small effect, both relative (0.168) and absolute (0.05). This  
 479 puzzling result is due to the family structure: we should remember that if all  
 480 elderly would live on themselves poverty would disappear. Poverty remains  
 481 because the minimum pension is diluted among non-elderly household mem-  
 482 bers.

483 With a \$2 a day the absolute reduction in poverty ranges from a negligible  
 484 amount in Chile and Uruguay to 11% in Columbia. The relative reduction  
 485 ranges from 16% in Nicaragua to 80% in Argentina. Not surprisingly the cost  
 486 is lower. It is negligible in Brazil, Chile and reaches a maximum of 1.5% in  
 487 Columbia.

488 Finally, let us address two key questions. Are those schemes financially  
 489 affordable and politically sustainable? The affordability depends on which  
 490 threshold we choose, \$2 a day or half the median income, and on the level  
 491 of national income. As a rule of thumb we would say that countries with  
 492 national income above the Latin American average could and should opt for  
 493 a minimum pension equal to half the median income. For the others, a \$2  
 494 a day pension is reasonable. It is interesting to consider the countries that  
 495 are relatively richer than the other: ABCU, Mexico and Venezuela. It is clear  
 496 that a minimum pension equal to half the median income seems to be more  
 497 desirable in these latter two countries where the rate of poverty is higher and  
 498 the reduction (12% in both countries) substantial.

499 If we turn to the poorest countries, Bolivia, Honduras, Nicaragua and  
 500 Paraguay, a \$2 minimum pension will have clear effects but with a cost rang-  
 501 ing from 1.1% to 0.3%, which seems affordable. It is worth noticing that Bo-  
 502 livia that has a quasi universal pension scheme keeps a quite high poverty rate  
 503 among elderly. This naturally comes from the fact that the existing scheme  
 504 provides benefits that are quite below the poverty line based on \$2 a day.

505 The final question is that of political sustainability. Even if such pension  
 506 scheme is adopted there is always the risk to see it progressively eroded be-  
 507 cause of lack of political will. Elderly people particularly in developing coun-

**Table 3.** Summary of results: Poverty reduction among the elderly with means-tested minimum pensions Poverty line = 0.5 of the national median per capita income

Country	Current poverty headcount ratio	Absolute reduction in poverty headcount ratio	Relative reduction in poverty headcount ratio	Relative cost of program, elderly $\geq 60$ years	Relative cost of program, elderly $\geq 65$ years
Argentina	0.13	0.09	0.685	0.019	0.012
Bolivia	0.29	0.17	0.597	0.012	0.007
Brazil	0.06	0.01	0.198	0.001	0
Chile	0.15	0.05	0.369	0.006	0.005
Colombia	0.31	0.15	0.48	0.029	0.02
Costa Rica	0.32	0.24	0.738	0.021	0.016
DR	0.22	0.13	0.621	0.019	0.014
Ecuador	0.25	0.1	0.402	0.009	0.007
El Salvador	0.17	0.11	0.656	0.024	0.018
Guatemala	0.24	0.08	0.347	0.007	0.005
Honduras	0.31	0.16	0.508	0.017	0.013
Mexico	0.28	0.12	0.405	0.009	0.007
Nicaragua	0.17	0.02	0.133	0.005	0.003
Panama	0.23	0.15	0.643	0.018	0.013
Paraguay	0.23	0.14	0.591	0.019	0.014
Peru	0.23	0.15	0.633	0.022	0.016
Uruguay	0.08	0.05	0.709	0.017	0.011
Venezuela	0.21	0.12	0.581	0.023	0.016

*Note:* OECD adjusted HH sizes are used in calculating the poverty headcount ratios.

tries do not have a big political weight. Relative to OECD countries their demographic importance is small. To the extent that the majority of elderly live with their children they cannot express their concerns truly independently. For these reasons it is important to give the minimum pension scheme a constitutional status and a frame that makes it adjust to social or economic changing parameters. For example the age at which the pension is made available could vary with longevity. Benefits should not be absolute but be linked to national income growth. One can imagine that with high inflation and depreciation of the US currency a \$2 a day pension quickly loses its attractiveness.

The exercise conducted in our paper could cover a number of other specifications pertaining to the age of entitlement (60 or 65 for men and women), the nature of transfers (cash or in kind), the conditionality (schooling of grandchildren). It is very likely that the results would not change much and that priority should be given to the issue of implementation.

**Table 4.** Summary of results: Poverty reduction among the elderly with means-tested minimum pensions Poverty line = \$2 a day

Country	Current poverty headcount ratio	Absolute reduction in poverty headcount ratio	Relative reduction in poverty headcount ratio	Relative cost of program, elderly $\geq 60$ years	Relative cost of program, elderly $\geq 65$ years
Argentina	0.03	0.02	0.796	0.006	0.004
Bolivia	0.17	0.09	0.523	0.006	0.003
Brazil	0.01	0.01	0.526	0	0
Chile	0	0	0.348	0	0
Colombia	0.22	0.11	0.504	0.015	0.011
Costa Rica	0.07	0.05	0.72	0.004	0.003
DR	0.02	0.01	0.514	0.005	0.004
Ecuador	0.13	0.06	0.423	0.003	0.003
El Salvador	0.1	0.07	0.658	0.017	0.013
Guatemala	0.08	0.03	0.365	0.002	0.002
Honduras	0.21	0.11	0.5	0.011	0.008
Mexico	0.15	0.08	0.536	0.003	0.003
Nicaragua	0.12	0.02	0.16	0.003	0.002
Panama	0.06	0.05	0.722	0.005	0.003
Paraguay	0.1	0.07	0.661	0.01	0.008
Peru	0.12	0.08	0.648	0.011	0.008
Uruguay	0	0	0.679	0.003	0.002
Venezuela	0.1	0.05	0.51	0.011	0.008

*Note:* OECD adjusted HH sizes are used in calculating the poverty headcount ratios.

522 **Appendix****Table 5.** Income and poverty levels

Country	Survey year	GNI per capita, Atlas method (current US\$)	Average per capita income	Median per capita income	Life expectancy at birth (years)	Poverty headcount, all HH's
Argentina	2006	5,140	344	229	75	0.21
Bolivia	2007	1,220	239	132	66	0.23
Brazil	2006	4,820	337	186	72	0.22
Chile	2006	6,890	464	272	78	0.16
Colombia	2004	2,500	156	85	72	0.24
Costa Rica	2006	5,030	340	216	79	0.18
DR	2006	3,390	278	165	72	0.18
Ecuador	2006	2,920	263	154	75	0.19
El Salvador	2006	2,980	221	152	71	0.17
Guatemala	2006	2,250	208	124	70	0.22
Honduras	2007	1,590	175	96	70	0.28
Mexico	2002	6,000	244	151	74	0.19
Nicaragua	2005	890	151	92	72	0.2
Panama	2006	4,940	303	175	75	0.23
Paraguay	2005	1,240	253	148	71	0.23
Peru	2006	2,930	222	144	73	0.21
Uruguay	2007	6,620	410	276	76	0.17
Venezuela	2006	6,120	239,675	172,852	73	0.18

*Note:* OECD adjusted HH sizes are used in calculating the poverty headcount ratios. The poverty line is 0.5 of the national median per capita income.

**Table 6.** Household size and structures

Country	Mean no. of HH members	Fraction of HH's with at least one elderly person in HH	HH consisting of elderly living alone (as a fraction of elderly households)
Argentina	3.4	0.32	0.46
Bolivia	4.05	0.24	0.31
Brazil	3.18	0.23	0.32
Chile	3.65	0.39	0.3
Colombia	4.04	0.3	0.17
Costa Rica	3.74	0.25	0.31
DR	3.74	0.27	0.21
Ecuador	4.22	0.33	0.29
El Salvador	4.18	0.31	0.21
Guatemala	5.02	0.25	0.19
Honduras	4.62	0.27	0.15
Mexico	4.2	0.25	0.27
Nicaragua	5.32	0.28	0.1
Panama	3.79	0.3	0.29
Paraguay	4.3	0.29	0.24
Peru	4.5	0.32	0.24
Uruguay	2.91	0.41	0.54
Venezuela	4.3	0.26	0.17

*Note:* Elderly are HH members aged  $\geq 60$  years. Column 1 is the mean number of HH members in ALL households. Column 2 is #EHH / #AHH. Column 3 is #EHH1 / #EHH.



**Table 7.** Poverty headcount ratios with (1) unadjusted household size (2) elderly aged 65 years and older

Country	All HH's, OECD adjusted	All HH's, unadjusted	Among elderly aged $\geq 60$ years, OECD adjusted	Among the elderly aged $\geq 60$ years, unadjusted	Among elderly aged $\geq 65$ years, OECD adjusted
Argentina	0.21	0.24	0.13	0.11	0.12
Bolivia	0.23	0.24	0.29	0.19	0.26
Brazil	0.22	0.25	0.06	0.06	0.05
Chile	0.16	0.18	0.15	0.11	0.15
Colombia	0.24	0.24	0.31	0.29	0.33
Costa Rica	0.18	0.2	0.32	0.25	0.36
DR	0.18	0.2	0.22	0.17	0.22
Ecuador	0.19	0.21	0.25	0.21	0.27
El Salvador	0.17	0.19	0.17	0.14	0.19
Guatemala	0.22	0.24	0.24	0.19	0.26
Honduras	0.28	0.28	0.31	0.26	0.32
Mexico	0.19	0.21	0.28	0.25	0.3
Nicaragua	0.2	0.22	0.17	0.15	0.17
Panama	0.23	0.25	0.23	0.19	0.24
Paraguay	0.23	0.24	0.23	0.17	0.26
Peru	0.21	0.22	0.23	0.17	0.25
Uruguay	0.17	0.21	0.08	0.05	0.07
Venezuela	0.18	0.2	0.21	0.18	0.23

*Note:* Elderly are HH members aged  $\geq 60$  years. Column 1 is the mean number of HH members in ALL households. Column 2 is #EHH / #AHH. Column 3 is #EHH1 / #EHH.

**Table 8.** Household size and structures

Country	All individuals	Elderly individuals
Argentina	0.09	0.06
Bolivia	0.1	0.12
Brazil	0.09	0.02
Chile	0.05	0.04
Colombia	0.20	0.21
Costa Rica	0.07	0.15
DR	0.06	0.07
Ecuador	0.07	0.12
El Salvador	0.06	0.06
Guatemala	0.08	0.09
Honduras	0.15	0.16
Mexico	0.08	0.15
Nicaragua	0.07	0.05
Panama	0.11	0.11
Paraguay	0.09	0.09
Peru	0.08	0.1
Uruguay	0.05	0.02
Venezuela	0.08	0.11

*Note:* OECD adjusted HH sizes with a poverty line of 0.5 of the national median per capita OECD adjusted income. Elderly are HH members aged  $\geq 60$  years.

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